

# 2013 NSF Cybersecurity Summit for Cyberinfrastructure and Large Facilities

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## Bios for Speakers, Program Committee, and Organizers

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*in alphabetical order by surname*

**Warren Anderson** is a gravitational wave physicist who has been part of the LIGO Scientific Collaboration since 1998. Along with his physics work, Warren has been active in LIGO computing, including working on the LIGO Computer Security Team and helping to found and grow the LIGO Identity and Access Management (LIAM) group. He is currently the project manager for the LIAM.

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Dr. **Peter Arzberger** is Senior Science Advisor, Office of the Director (OD), National Science Foundation. Dr. Arzberger comes to NSF from the University of California, San Diego where he serves as the Founding Chair of the Pacific Rim Application and Grid Middleware Assembly (PRAGMA), an NSF-funded program developing collaborations, advancing application use and development of cloud and grid technologies, and student interactions throughout Pacific Rim institutions. He is also the Director of National Biomedical Computation Resource (NBCR), focusing on advanced computational technology to better enable biomedical research. His research has received wide ranging support from NSF, NIH, the Gordon and Betty Moore Foundation and the state of California, and has focused on broad interests in computational and data-driven biology, application-driven cloud and grid utilization and development, global sensor networks in ecology - in particular lake sciences via the Global Lake Ecological Observatory Network (GLEON), and models of international collaboration for researchers and students. He has also served as Director, Life Science Initiatives, UCSD; Executive Director, National Partnership for Advanced Computational Infrastructure (NPACI); and the Executive Director and Deputy Director, San Diego Supercomputer Center.

At NSF, Dr. Arzberger has served as a Program Director, 1988-1995, in the Divisions of Mathematical Sciences and Biological Infrastructure; as Division Director, Biological Infrastructure, 2009-2010; and as Acting Assistant Director and Senior Advisor, Directorate of Computer and Information Science and Engineering (CISE), 2010-2011. He served as a member of the NSF Advisory Committee for International Science and Engineering from 2012 to 2013.

Dr. Arzberger received his B.S. degree (1974) in mathematics from the University of Massachusetts; M.S. degree (1979) in statistics and Ph.D. (1983) in mathematics from Purdue University.

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**Michael Bailey** is Associate Research Professor, LEO Adjunct Lecturer, and Co-Director of the Network and Security Research Group, University of Michigan. Professor Bailey's research is focused on the security and availability of complex distributed systems. His work informs both the development of such systems as well as the sciences of computer security, network architecture and design, network

protocols, and distributed systems. His work has been funded by the National Science Foundation, the Department of Homeland Security, the Department of Defense, the Beyster Foundation, and a number of commercial networking and security firms. Michael received his PhD in Computer Science and Engineering from Michigan in 2006 and joined the faculty as a Research Scientist in 2007. Prior to U-M, he was the Director of Engineering at network security company Arbor Networks. He is a Senior Member of the IEEE.

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**Jim Basney** is a senior research scientist at the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign. Jim leads the CILogon project ([www.cilogon.org](http://www.cilogon.org)), which enables federated authentication to cyberinfrastructure, and he leads the Distributed Web Security for Science Gateways project ([www.sciencegatewaysecurity.org](http://www.sciencegatewaysecurity.org)), which provides standards compliant authorization and delegation software for science gateways. Jim is also the security technical lead for XSEDE ([www.xsede.org](http://www.xsede.org)) Software Development and Integration (SD&I). Jim maintains the MyProxy credential management software, an “exemplar of success in cyberinfrastructure software sustainability” according to the report from the NSF workshop on CyberInfrastructure Software Sustainability and Reusability (<http://pti.iu.edu/ci/ciss/final-report>). Jim is an active participant in the Globus Security Committee, The Americas Grid Policy Management Authority, the CIC Identity Management Taskforce, and the InCommon Technical Advisory Committee. Jim received his PhD in computer sciences from the University of Wisconsin-Madison where he worked as a graduate research assistant on the Condor project.

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**Greg Bell** is Director of the Scientific Networking Division at Lawrence Berkeley National Laboratory (Berkeley Lab), and Director of the Energy Sciences Network (ESnet), the US Department of Energy's high-performance networking facility, engineered and optimized for large-scale science. Bell joined ESnet in 2010. Previously, he worked in Berkeley Lab's IT Division as Chief Technology Architect, reporting to the CIO. Bell's professional interests include advanced networking, security models for open science, collaborative tools, sustainable IT, cloud services, and high-performance computing.

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Dr. **Rakesh B. Bobba** is a Research Assistant Professor in the College of Engineering at the University of Illinois, Urbana-Champaign with appointments in Information Trust Institute and Electrical and Computer Engineering Department. His research interests are in the security of distributed and networked systems with a current focus on cyber-physical systems including critical infrastructures such as the power grid and cloud computing. He received M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Maryland at College Park in 2007 and 2009, respectively.

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**Brian Bockelman** leads the Open Science Grid Technology area, which is charged with planning and executing the technology evolution of the OSG. The OSG maintains a production grid infrastructure.

Its software stack (containing middleware such as HTCondor, Globus, and Xrootd) is deployed at over 100 sites, primarily academic clusters and labs. In the last few years, the OSG has been evolving its trust model to become more "user friendly" without sacrificing security. Brian's other roles include PI on the Lark project, for integrating the network and high-throughput computing layers and technical lead on the "Any Data, Any Time, Anywhere" project for improving data accessibility in High Energy Physics. Brian is a faculty member of the Computer Science and Engineering department at the University of Nebraska-Lincoln.

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**Scott Campbell** began working at LBNL/NERSC in April of 2002 on network security. Scott works on the Bro intrusion detection systems and incident response. Prior to LBNL, Scott has worked extensively in industry in the areas of Unix and network administration. Scott holds a bachelor of science degree in Physics from San Francisco State University.

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**Michael Corn** is the senior Security and Privacy Officer for the Urbana campus as well as the Chief Information Security Officer for the University of Illinois. In addition to overseeing the campus Security and Privacy Office, his recent and ongoing responsibilities include CALEA, PCI, security and privacy provisions in contracts for electronic services, strategic procurement, and information policy for the campus. Michael is a member of the Educause CALEA Technical Team and the State of Illinois PKI Policy Board. He is a graduate of the University of Colorado at Boulder and the University of Illinois at Urbana-Champaign. He has prior experience on the NSF Cybersecurity Summit Program Committee.

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**Joel Cutcher-Gershenfeld** is a Professor and former Dean in the School of Labor and Employment Relations (LER) at the University of Illinois. He is also a Senior Research Scientist with the National Center for Super Computing Applications (NCSA) and holds a courtesy appointment in Industrial and Enterprise Systems Engineering (IESE) at the University of Illinois. Joel also serves as a visiting Professor in Work and Organizations at the University of Sydney, Australia.

He is an award-winning author who has co-authored or co-edited ten books, including *Multinational Human Resource Management and the Law* (Edward Elgar, forthcoming), *Valuable Disconnects in Organizational Learning Systems* (Oxford University Press, 2005), *Lean Enterprise Value* (Palgrave, 2002), *Knowledge-Driven Work* (Oxford University Press, 1998), and *Strategic Negotiations* (Harvard Business School Press, 1994), and over eighty five articles on high performance work systems, transformation in labor-management relations, negotiations and conflict resolution, economic development, and engineering systems. His current research centers on stakeholder alignment in complex systems – a foundation for 21<sup>st</sup> Century institutions. Along with his co-inventors, he has a patent pending on a new visualization method designed to help see points of alignment and misalignment among stakeholders.

Joel was the 2009 President of the Labor and Employment Relations Association (LERA). Prior to coming to the University of Illinois, Joel served as a Senior Research Scientist and Executive Director of the Engineering Systems Learning Center, with a joint appointment in MIT's Sloan School of Management and MIT's Engineering Systems Division, as well as a Visiting Associate Professor at Babson College, and an Associate Professor at Michigan State University.

Joel has extensive experience leading large-scale systems change initiatives with public and private stakeholders in Australia, Bermuda, Canada, Denmark, England, Iceland, Italy, Jamaica, Mexico, New Zealand, Panama, Poland, Spain, South Africa, and the United States. He holds a Ph.D. in Industrial Relations from MIT and a B.S. in Industrial and Labor Relations from Cornell University.

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**Patrick Duda** is a member of NCSA's Cybersecurity directorate and is currently assigned to work on CTSC. His responsibilities are to aid in the EOT efforts under the direction of Randy Butler. Most of this work is aimed at developing training programs to disseminate security information to NSF funded CI projects. Prior to joining NCSA Patrick worked with several software development companies. At NCSA he has worked on GRID computing and various other science projects.

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**Deborah A. Frincke** is Deputy Director for Research at the National Security Agency. Dr. Frincke's research spans a broad cross section of computer security with a focus on infrastructure defense and computer security education. Before joining NSA, she was Chief Scientist for Cyber Security at Pacific Northwest National Laboratory (PNNL). At PNNL since 2004, Dr. Frincke led their internal research investment in cyber security. Additionally, she is an Affiliate Professor at the University of Washington's Information School. Prior to her tenure at PNNL, Dr. Frincke was a full professor at the University of Idaho and co-founder/co-director of their Center for Secure and Dependable Systems, one of the first such institutions to receive NSA's designation of a National Center of Excellence in Information Assurance Education. Moreover, she was one of the four original co-founders of TriGeo Network Security, where she served as Lead Scientist and CTO. Dr. Frincke earned her bachelor's degree in computer science and mathematics from the University of California, Davis, and her master's and doctorate degrees in computer science from University of California, Davis.

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After receiving a bachelor's degree in Geography from the Ohio State University **Seth Hall** began full time work in the OSU Network Security team where he began working with Bro. Later he headed to General Electric to work on deploying Bro more broadly within that organization. Shortly afterward he started with the International Computer Science Institute under an NSF grant to solidify and expand Bro. He's currently still at ICSI, but also taking on commercial work with Bro as a co-founder of Broala.

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**Ardoth Hassler** is Associate Vice President of University Information Services & Executive Director, Office of Assessment and Decision Support at Georgetown University. There, her work focuses on analytics, institutional research, business intelligence, data warehousing and reporting as well as planning, policy and research. She was on loan to the National Science Foundation 2007-2011 where she served as Senior Information Technology Advisor in the Office of the Chief Information Officer in the NSF Office of Information and Resource Management, Division of Information Systems. Her activities included work related to cybersecurity best practices for large research facilities, working on technology policy for the Foundation and large research facilities, assisting NSF in joining the InCommon Federation and introducing concepts of single-sign-on logon to Research.gov, leading the SSN Be Gone project to remove SSNs from FastLane and other systems where there was no business need, working on NSF's Got Green initiative, as well as other important projects. In 2009 and 2010, she received Director's Awards for her work with the Got Green team. She has prior experience on the NSF Cybersecurity Summit Program Committee. She has a BS in Math (CS minor) from Oklahoma State University and an MS in Biostatistics from the University of Oklahoma.

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**Randy Heiland** is a Senior Systems Analyst and Programmer at Indiana University's Center for Applied Cybersecurity Research. He is a computer scientist (M.S., U. Utah '85) and applied mathematician (M.A., Arizona State U. '92) who has worked in industry, government labs, and academia. In 2003, he joined IU's Pervasive Technology Labs (now the Pervasive Technology Institute) as an Associate Director of the Scientific Data Analysis Lab at IUPUI. While at IU, he has contributed to projects at the Medical School, UITS Research Technologies, and grant-funded (NSF and NIH) software development projects that included Purdue's Dept. of Chemistry, IU's Dept. of Physics, and IU's School of Informatics and Computing. He is currently contributing to the NSF-funded **Center for Trustworthy Scientific Cyberinfrastructure**.

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Prof. **Elisa Heymann** received her B.S. in Computer Science from Universidad Simon Bolvar (Venezuela) in 1992. She also received the M.S. and Ph.D. degrees in Computer Science from the Universitat Autònoma de Barcelona (Spain) in 1995 and 2001 respectively. She is an Associate Professor in the Computer Architecture and Operating Systems Department. She co-directs the MIST software vulnerability assessment project in collaboration with her colleagues at the University of Wisconsin Madison. She is also in charge of the Grid group at the UAB, and currently she participates in two major Grid European Projects: EGI-InSPIRE and European Middleware Initiative (EMI). Heymann co-chaired the Shonan Seminar on Grid and Cloud Security (October 2012). Her research interests include security and resource management for Grid and Cloud environments. This research is supported by the Spanish government, the European Commission, and NATO.

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**Craig Jackson** is a policy analyst and project manager at Indiana University's Center for Applied Cybersecurity Research. He is a graduate of the IU Maurer School of Law (JD '10) and IU School of Education (MS '04). His project management, research, and design background includes work at IU

School of Education's Center for Research on Learning and Technology and Washington University in St. Louis School of Medicine. As a member of the Indiana bar, he has litigated state and federal court. His interests include cybersecurity, privacy, identity management, and criminal justice policy and law, as well as risk management and theory.

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Dr. **Cliff Jacobs** has been at the National Science Foundation (NSF) for 28 years and for 25 years of that time provided oversight to the National Center for Atmospheric Research (NCAR) and its managing organization University Corporation for Atmospheric Research (UCAR). Currently, he is an expert with the Division Advanced Cyberinfrastructure. Dr. Jacobs has represented the geosciences in a variety of NSF studies and initiatives related to high performance computing and information technology, observing facilities, and best practices in the operation and management of facilities. As chair of the internal working group on cybersecurity for NSF large facilities, Dr. Jacobs supported the development of five community workshops and helped to craft cybersecurity language in the cooperative agreements for large facilities.

Dr. Jacobs received his Bachelor of Arts degree in Mathematics from Texas A&M University and his Master of Science degree in Oceanography, also from Texas A&M University. His Doctor of Philosophy degree was awarded by New York University in Oceanography.

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Dr. **Farnam Jahanian** serves as the National Science Foundation Assistant Director for the Computer and Information Science and Engineering (CISE) Directorate. He guides CISE in its mission to uphold the nation's leadership in scientific discovery and engineering innovation through its support of fundamental research in computer and information science and engineering and transformative advances in cyberinfrastructure. Dr. Jahanian oversees the CISE budget of over \$850 million, directing programs and initiatives that support ambitious long-term research and innovation, foster broad interdisciplinary collaborations, and contribute to the development of a computing and information technology workforce with skills essential to success in the increasingly competitive, global market. He also serves as co-chair of the Networking and Information Technology Research and Development (NITRD) Subcommittee of the National Science and Technology Council Committee on Technology, providing overall coordination for the activities of 14 government agencies.

Dr. Jahanian holds the Edward S. Davidson Collegiate Professorship in Electrical Engineering and Computer Science at the University of Michigan, where he served as Department Chair for Computer Science and Engineering from 2007 - 2011 and as Director of the Software Systems Laboratory from 1997 - 2000. Earlier in his career, he held research and management positions at the IBM T.J. Watson Research Center.

Over the last two decades at the University of Michigan, Dr. Jahanian led several large-scale research projects that studied the growth and scalability of the Internet infrastructure, which ultimately transformed how cyber threats are addressed by Internet Service Providers. His research on Internet infrastructure security formed the basis for the successful Internet security services company Arbor

Networks, which he co-founded in 2001. Dr. Jahanian served as Chairman of Arbor Networks until its acquisition in 2010.

Dr. Jahanian is the author of over 100 published research papers and has served on dozens of national advisory boards and panels. His work on Internet routing stability and convergence has been highly influential within both the network research and the Internet operational communities and was recognized with an ACM SIGCOMM Test of Time Award in 2008. He has received numerous other awards for his innovative research, commitment to education, and technology commercialization activities. He was named Distinguished University Innovator at the University of Michigan (2009) and received the Governor's University Award for Commercialization Excellence (2005).

Dr. Jahanian holds a master's degree and a Ph.D. in Computer Science from the University of Texas at Austin. He is a Fellow of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronic Engineers (IEEE), and the American Association for the Advancement of Science (AAAS).

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As the Information Security Officer of the Pittsburgh Supercomputing Center, **James A. Marsteller, Jr.** (CISSP) is responsible for ensuring the availability and integrity of the PSC's high performance computing assets. Jim has over 12 years experience in the information security field and greater than 17 years of professional experience in the field of technology. Prior to working at PSC, he was a program manager for the Carnegie Mellon Research Institute that provided information security consulting services for government agencies and Fortune 500 companies. Jim leads the XSEDE Incident Response team and is XSEDE's security officer. He is a Co-PI for the Center for Trustworthy Scientific Cyberinfrastructure (CTSC). Jim chaired the program committee for the two most recent past summits, in 2008 and 2009.

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Dr. **Michael McLennan** is a senior research scientist in research computing at Purdue University, where he is Director of the HUBzero® Platform for Scientific Collaboration. HUBzero powers nanoHUB.org, NEES.org, and more than 50 other Web sites supporting both education and research. All together, these sites served more than 1,000,000 visitors worldwide during the past 12 months alone.

Dr. McLennan received a Ph.D. in 1990 for his dissertation on dissipative quantum mechanical electron transport in semiconductor heterostructure devices. He spent 14 years working in industry at Bell Labs and Cadence Design Systems, developing software for computer-aided design of integrated circuits. He created [incr Tcl], an object-oriented extension of the Tcl scripting language, which has been used by thousands of developers worldwide on projects ranging from the TiVo digital video recorder to the Mars Pathfinder.

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Prof. **Barton Miller** is a professor of computer science at the University of Wisconsin Madison. Prof. Miller founded the field of fuzz random testing, which is foundational to computer security and software testing. In addition, he founded (with his then-student Prof. Jeffrey Hollingsworth) the field of dynamic binary instrumentation, which is a widely used, critical technology for cyberforensics. Prof. Miller advises the Department of Defense on computer security issues through his position at the Institute for Defense Analysis and was on the Los Alamos National Laboratory Computing, Communications and Networking Division Review Committee and the US Secret Service Electronic Crimes Task Force (Chicago Area). He is currently an advisor to the Wisconsin Security Research Council. Prof. Miller is a fellow of the ACM.

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**Leif Nixon** is based at the National Supercomputer Centre (NSC), Linköping University, Sweden. He has 15 years of experience in IT security, mainly in an operational role. In addition to serving as Security Officer for the Nordic e-Infrastructure Collaboration and the Swedish national grid infrastructure, he also heads the incident response task force for the European Grid Infrastructure (EGI).

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**Sam Oehlert** is a security engineer at NCSA. Day to day, Sam works in operational security. His duties include incident response, system administration for the security group, and security projects including acting as the lead bro user in the group. He graduated from the University of Illinois in Urbana-Champaign in 2010 and has been working at NCSA since graduating.

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**Vern Paxson** is a professor of Electrical Engineering and Computer Sciences at UC Berkeley and leader of the Networking and Security group at the International Computer Science Institute in Berkeley. His research focuses heavily on measurement-based analysis of network activity and Internet attacks. He has worked extensively on high performance network monitoring and on cybercrime, and co-directs the Center for Evidence-based Security Research ([www.evidencebasedsecurity.org](http://www.evidencebasedsecurity.org)).

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**Rodney Petersen** is Managing Director of the EDUCAUSE Washington Office. He also directs the EDUCAUSE Cybersecurity Initiative and is the lead staff liaison for the Higher Education Information Security Council. Prior to joining EDUCAUSE, he served as the Director of IT Policy and Planning in the Office of the Vice President and Chief Information Officer at the University of Maryland. He is the co-editor of a book in the EDUCAUSE Leadership Strategy Series entitled "Computer and Network Security in Higher Education". He received his law degree from Wake Forest University. He also received a certificate as an Advanced Graduate Specialist in Education Policy and Leadership from the University of Maryland.

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**Mark Servilla** is Lead Scientist, Network Information System at LTER Network Office (LNO). At LNO, Mr. Servilla's primary responsibility is the implementation of the LTER Network Information System—a system of standards and applications that support the interoperability of distributed LTER research sites, thus enabling synthetic science at the Network level and beyond. To achieve a successful Network Information System, he will rely on his skills as a computer scientist to use the latest computing technologies for maximum effectiveness within the NIS, while utilizing his experience as an earth scientist to better serve the needs and understand the requirements of LTER, associated scientists, and the field of Ecology in general. Prior to his current position at LNO, Mark's most recent role in the private sector at Photon Research Associates (PRA), Inc. was as architect of a web-based application (GeoServer TM) that provided the discovery, management, and exploitation of geospatial data, including Earth observation imagery and GIS vector objects. Mark holds graduate degrees in Earth and Planetary Sciences (Volcanology) and Computer Science, both from the University of New Mexico.

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**Adam Slagell** is a senior research scientist in the Cyber Security Directorate at the NCSA, the Chief Information Security Officer, a member of the University Information Security Committee, and the leader of several projects that blend research and development activities. His most notable current activities are as leader of the Bro development efforts at NCSA and the Blue Waters Petascale computing system's security architect.

Adam completed his Masters in mathematics at Northern Illinois University and his Masters in computer science at the University of Illinois Urbana-Champaign where he was focused on number theory and applied cryptography. After graduation he joined the NCSA where he has been working in the security group for the past 10 years.

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**Robin Sommer** is a Senior Researcher at the International Computer Science Institute, Berkeley, and he is also a member of the cyber-security team at the Lawrence Berkeley National Laboratory. Robin Sommer's research focuses on network security and privacy, with a particular emphasis on high-performance network monitoring in operational settings. He is leading the development of the open-source Bro network security monitor, and he is a co-founder of Broala, a recent start-up offering professional Bro services to corporations and government.

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Dr. **Vicraj (Vic) Thomas** is a Scientific Director at BBN Technologies. He leads the Experimenter Support and Advocacy group within the GENI Project Office. The GENI Project Office provides the NSF with program management and systems engineering support in the design and development of GENI. GENI is a suite of research infrastructure rapidly taking shape across the United States. It is well suited for exploring networks at scale, thereby promoting innovations in network science, security, services and applications.

Dr. Thomas' research interests include dependable systems and systems security. In the past he was a co-PI on an intrusion detector correlation project funded by the DARPA CyberPanel program and the PI of a project on the DARPA Cougar program that developed intrusion detection agents. On the GENI project, Dr. Thomas was one of the systems engineers that developed a security plan for GENI.

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**John Towns** is Director of the Collaborative eScience Programs Office at the National Center for Supercomputing Applications (NCSA) at the University of Illinois. He is also PI and Project Director for the Extreme Science and Engineering Discovery Environment (XSEDE) project and the Operations Manager for the Illinois Campus Cluster Program. Towns plays significant roles in the deployment and operation of high-end resources and services, and distributed computing projects. His background is in computational astrophysics utilizing a variety of computational architectures with a focus on application performance analysis. At NCSA, he provides leadership and direction in the support of an array of computational science and engineering research projects making use of advanced computing resources and services. He earned M.S. degrees in Physics and Astronomy from the University of Illinois and a B.S. in Physics from the University of Missouri-Rolla.

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**Von Welch** is the deputy director of Indiana University's Center for Applied Cybersecurity Research (CACR) and PI for the Center for Trustworthy Scientific Cyberinfrastructure, a project dedicated to helping NSF science projects with their cybersecurity needs. His expertise lies in applied research and practice of cybersecurity for distributed systems. Other roles include serving as CSO of the Software Assurance Market Place, a DHS-funded facility to foster software assurance and software assurance research, PI on a Department of Energy funded grant focused on identity management for extreme-scale scientific collaboration, and serving the Open Science Grid as an identity management expert. Previously he has worked with a range of high-visibility projects to provide cybersecurity to the broader scientific and engineering community, including TeraGrid, Open Science Grid, Ocean Observatory Infrastructure, and GENI. His work in software and standards includes authoring two IETF RFCs and the contributing to the creation of the well-known CILogon and MyProxy projects.